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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,236	06/24/2003	Bruce H. Storm	1391-34500	8527

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EXAMINER	
VERBITSKY, GAIL KAPLAN	
ART UNIT	**PAPER NUMBER**
2859	

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/602,236	STORM ET AL.	
	Examiner	Art Unit	
	Gail Verbitsky	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-89* is/are pending in the application.

4a) Of the above claim(s) *9,26,29-44,49,66,77 and 85-89* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-25,27,28,45-48,50-65,67-76 and 78-84* is/are rejected.

7)☒ Claim(s) *2,73 and 81* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 03/21/2005
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *two attachments*.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Invention I, claims 1-28 and 45-85, and species of claims 8, 25, 48, 65, 76, 84 in the reply filed on June 11, 2004 is acknowledged. Accordingly, claims 29-44, 86-89 and 9, 26, 49, 66, 77 and 85 are withdrawn from further consideration as drawn to non-elected invention/ species.

Specification

2. The disclosure is finally objected to because of the following informalities: the "heat storage unit" has not been described in the specification. Applicant has only described a heat sink having a storage capacity.

Appropriate correction is required.

Drawings

3. The drawings are finally objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "heat storage unit" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1, 45, 50, 69, 78 are finally rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In this case, a) the "*heat storage unit*" has not been described in the specification. Furthermore, please note, that in the rejection on the merits, the examiner considers that the heat storage unit is a heat sink having a heat storage capacity, as very well known in the art.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 16 is finally rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In this case, since the "*mini-, micro- pump*" has not been clearly defined in the specification, the Examiner uses the broadest reasonable interpretation of these terms. Furthermore, please note, that in the rejection on the merits, the examiner considers that the *mini- or micro- pump* is a pump of a small size.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 3-8, 10-12,15, 25, 27-28, 69-72, 74-76, 78-80, 82-84 are finally rejected under 35 U.S.C. 102(b) as being anticipated by Flores (U.S. 5701751).

Flores discloses in Figs. 1-11 a device in the field of applicant's endeavor. Flores emphasizes the need of actively cooling a downhole logging tool electronics (col. 4, lines 61-62). Flores discloses a thermal component (heat generating component) 37 in a hot borehole environment, in thermal communication with a hot heat exchanger 24, 39 a thermal conduit system (heat pipes) 43 thermally coupling the heat exchanger 39 with a low tank (heat storage/ heat sink) 50 of water (eutectic heat phase change liquid) and all within a Dewar flask/ thermal barrier/ (col. 5, line 47). The heat exchanger, the heat storage and the thermal conduit are located in the downhole tool.

The heat sink/ heat storage 50 absorbs heat from the overheated thermal component. When a cooling liquid in the heat storage boils, and thus, the heat storage reaches its capacity, the heat from the heat storage is removed by a compressor pumping (pump) the heat/ steam from the cooling agent in the heat storage, and condensing the steam into the cooling agent. The device, inherently, has a valve, for controlling the cooling fluid flow. It is also inherent, that, as shown above, the system is working as a closed loop system. The thermal component is a heat-generating component that overheats during operating or, inherently, when the environment (borehole) overheats.
The method steps will be met during the normal operation of the device stated above.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 13-14 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Flores in view of Boesen (U.s. 4375157).

Flores discloses the device/ method as stated above in paragraph 9.

Although Flores teaches a Dewar flask thermal insulation, Flores does not explicitly teach all the limitations of claims 13-14.

Boesen discloses a device in the field of applicant's endeavor including a vacuum insulated (evacuated) Dewar flask container.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Flores, so as to have a vacuum insulated/ evacuated thermally insulated container, as taught by Boesen, so as to better control the temperature of the cooling fluid, and thus, to achieve sufficient thermal component cooling.

12. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Flores in view of de Kanter (U.s. 4407136) [hereinafter Kanter].

Flores discloses the device/ method as stated above in paragraph 9.

Flores does not explicitly teach the particularly sized pump.

Kanter discloses a device in the field of applicant's endeavor comprising a small (mini-) size pump 32 (col. 3, line 49).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Flores, so as to have a small (mini-) size pump, as taught by Kanter, so as to minimize the size of the device, and thus, possibly, to minimize the manufacturing costs.

13. Claims 16-18 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Flores.

Flores discloses the device/ method as stated above in paragraph 9.

Flores does not explicitly teach a plurality of heat exchangers and the particular sized pump.

With respect to claim 17: having a plurality of heat exchangers, absent any criticality, is only considered to be an obvious modification of the system disclosed by

Flores. While the addition of multiple heat exchangers to the concept of Flores undoubtedly makes the invention more useful with a plurality of heat exchangers, it is not the type of innovation for which a patent monopoly is to be granted. See In re St. Regis Paper Co. v. Bemis Co., Inc., 193 USPQ 8, 11 (7th Cir. 1977).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system disclosed by Flores, so as to have a plurality of heat exchangers, so as to provide the operator with fast and efficient cooling system.

With respect to claim 16: The particular size of the pump, i.e., mini- micro-, as stated in claim 16, absent any criticality, is only considered to be the "optimum" size of the pump used by Flores that a person having ordinary skill in the art at the time the invention was made would have been able to determine using routine experimentation based, among other things, on the type and size of the thermal component being cooled, etc. ***See In re Boesch, 205 USPQ 215 (CCPA 1980).***
Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Flores, so as to have a small (mini-) size pump, so as to minimize the size of the device, and thus, possibly, to minimize the manufacturing costs.

14. Claims 17-24 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Flores in view of Drube et al. (U.S. 6799429) [hereinafter Drube].

Flores discloses the device/ method as stated above in paragraph 9.

Flores does not explicitly teach a plurality of heat exchangers parallel or in series, as stated in claims 17-24.

Drube discloses a cooling device comprising a section of parallel-connected heat exchangers and a section of serially connected heat exchangers that provide a maximum fluid flow capability.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system disclosed by Flores, so as to have a plurality of parallel and serially connected heat exchangers, as taught by Drube, so as to provide a maximum fluid flow capability, as already suggested by Drube.

Allowable Subject Matter

15. Claims 2, 73, 81 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. Claims 45-48, 50-65, 67-68 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Response to Arguments

17. Applicant's arguments with respect to claims 1-8, 10-25, 27-28, 69-76, 78-84 have been considered but are moot in view of the new ground(s) of rejection.

With respect to the terms "micro-", "mini-": Applicant states that the terms "micro-" and "mini-" with reference to pump are standard industry terms. This argument is not persuasive because, as becomes obvious from the appendices submitted by applicant, the mini- or micro- pumps are described, along with other features, by their flow rate, which is, according to the appendices, can be 1-80 mL/min, to 288ml/ min, while,

according to documents cited by the examiner (see attachments ## 1-2 to the Office action), said pumps can have the flow rate to 70 L/ min, 1 pint per min (0.473 L/min). *KNF Neubereger GmbH* defines Micro-pumps as 0.25 to 4 l/min, and Mini-pumps as 4 to 15 L/min. Thus, as shown above, there is no standard definition of said pumps. Their common feature is only a small size, which is not always related to the terms "micro-" or "mini-". For example, Micro-pump of *KNF Neubereger GmbH* has the flow rate of 0.25 to 4 **L**/ min, not necessarily micro-liters per min. Therefore, the Examiner stands on her previous position with respect to these terms. In the rejection on the merits, the Examiner uses the broadest reasonable interpretation of this term, i.e., small, miniature size of the pump.

With respect to 102 and 103 rejection: the arguments are now moot.

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices and methods.

Any inquiry concerning this communication should be directed to the Examiner Verbitsky who can be reached at (571) 272-2253 Monday through Friday 8:00 to 4:00 ET.

GKV

Gail Verbitsky
Primary Patent Examiner, TC 2800

April 14, 2005